

# **Future Combat Systems**

**COL Josef Schroeder**

**Chief of Staff**

**Objective Force Task Force**

## Report Documentation Page

<b>Report Date</b> 18062001	<b>Report Type</b> N/A	<b>Dates Covered (from... to)</b> -
<b>Title and Subtitle</b> Future Combat Systems		<b>Contract Number</b>
		<b>Grant Number</b>
		<b>Program Element Number</b>
<b>Author(s)</b> Schroeder, Josef		<b>Project Number</b>
		<b>Task Number</b>
		<b>Work Unit Number</b>
<b>Performing Organization Name(s) and Address(es)</b> Unknown		<b>Performing Organization Report Number</b>
<b>Sponsoring/Monitoring Agency Name(s) and Address(es)</b> NDIA (National Defense Industrial Association 2111 Wilson Blvd., Ste. 400 Arlington, VA 22201-3061		<b>Sponsor/Monitor's Acronym(s)</b>
		<b>Sponsor/Monitor's Report Number(s)</b>
<b>Distribution/Availability Statement</b> Approved for public release, distribution unlimited		
<b>Supplementary Notes</b> Proceedings from Armaments for the Army Transformation Conference, 18-20 June 2001 sponsored by NDIA.		
<b>Abstract</b>		
<b>Subject Terms</b>		
<b>Report Classification</b> unclassified	<b>Classification of this page</b> unclassified	
<b>Classification of Abstract</b> unclassified	<b>Limitation of Abstract</b> UU	
<b>Number of Pages</b> 10		

# Future Combat Systems Concept Teams

## The Boeing Team



*The Boeing Company, Seattle, WA  
New Definitions, Inc., Tacoma, WA  
Vector Research, Inc., Ann Arbor, MI  
Whitney, Bradley & Brown, Inc., Vienna, VA  
Signature Research, Inc., Calumet, MI  
National Institute of Standards and Technology (NIST),  
Gaithersburg, MD  
Rockwell Science Center, Thousand Oaks, CA  
Krauss-Maffei Wegmann (KMW), Germany*

## Team Full Spectrum



*SAIC  
United Defense, LP  
ITT Industries  
Northrop Grumman Corp  
Logistics Management Institute (LMI)  
SRI International  
Strategic Perspectives Inc.  
Omnitech Robotics International LLS  
University of Texas Center for Electromechanics  
VRI*

## Team Gladiator (Consortium)



*TRW  
Lockheed Martin  
CSC/Nichols Research  
Battelle Institute  
Carnegie Mellon  
IITRI/AB Technologies*

## Team FoCus Vision (Consortium)

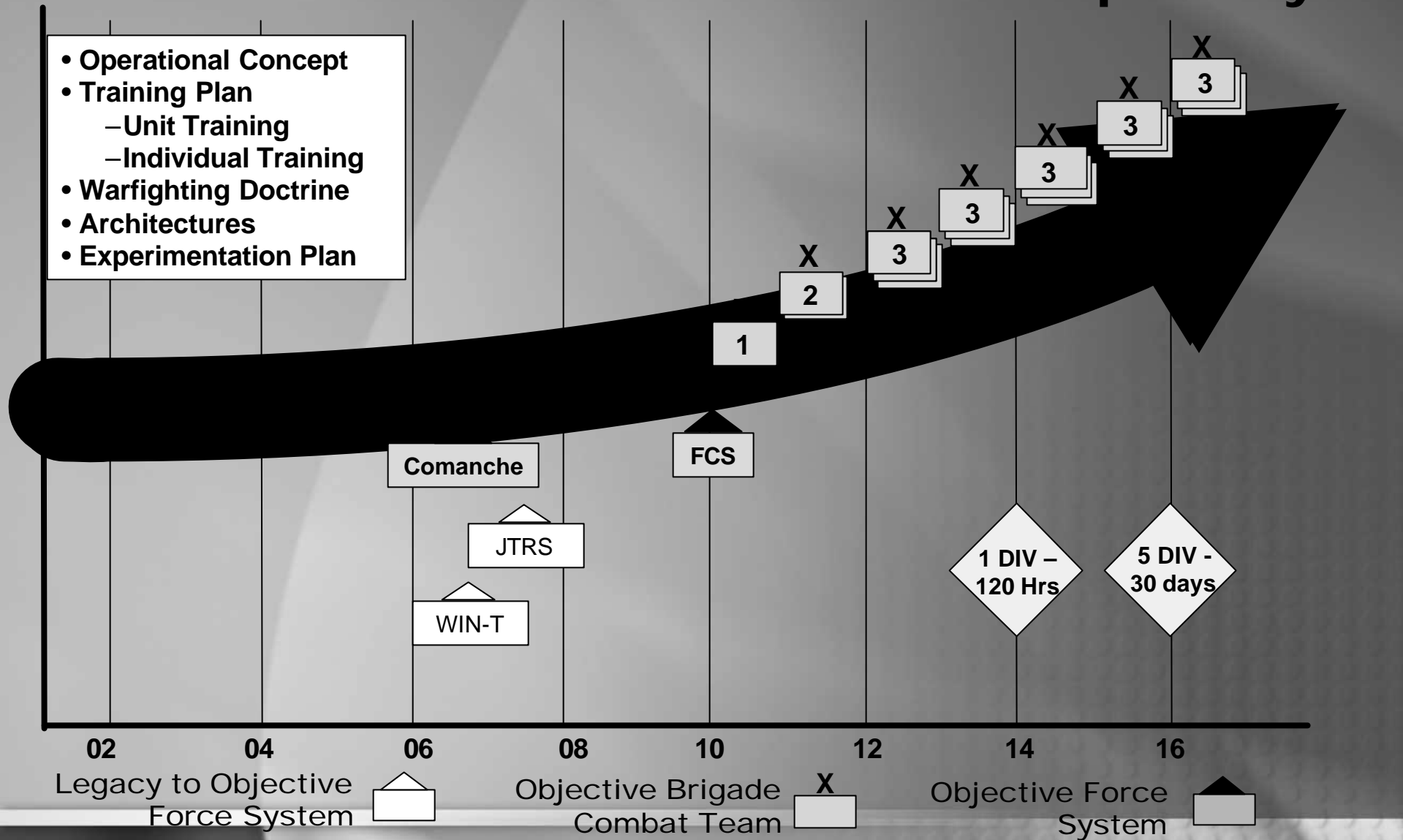


*Team FoCuS vision led by General Dynamics Land Systems Inc., Sterling Heights, Michigan and Raytheon Company, Plano, Texas.*

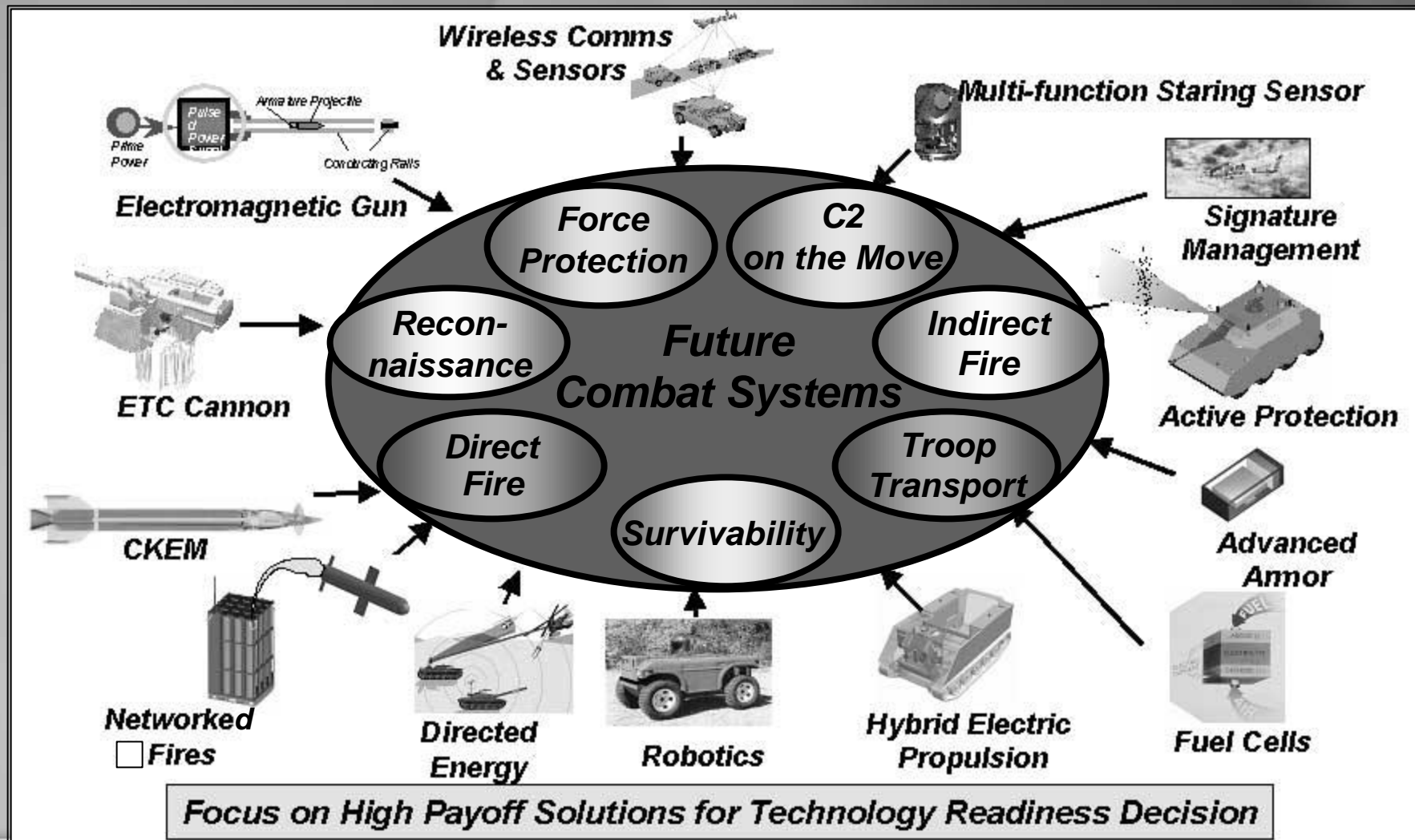
*Other participants with GDLS and Raytheon include:*

*Aurora Flight Sciences  
Carnegie-Mellon University  
Honeywell  
Maxwell Physics International  
Stanford Research Institute International  
Sensis  
Sensor.com Wireless Integrated Network Sensors  
Whitney Bradley & Brown Inc.  
Los Alamos National Laboratory*

# Achieving Objective Force Capability

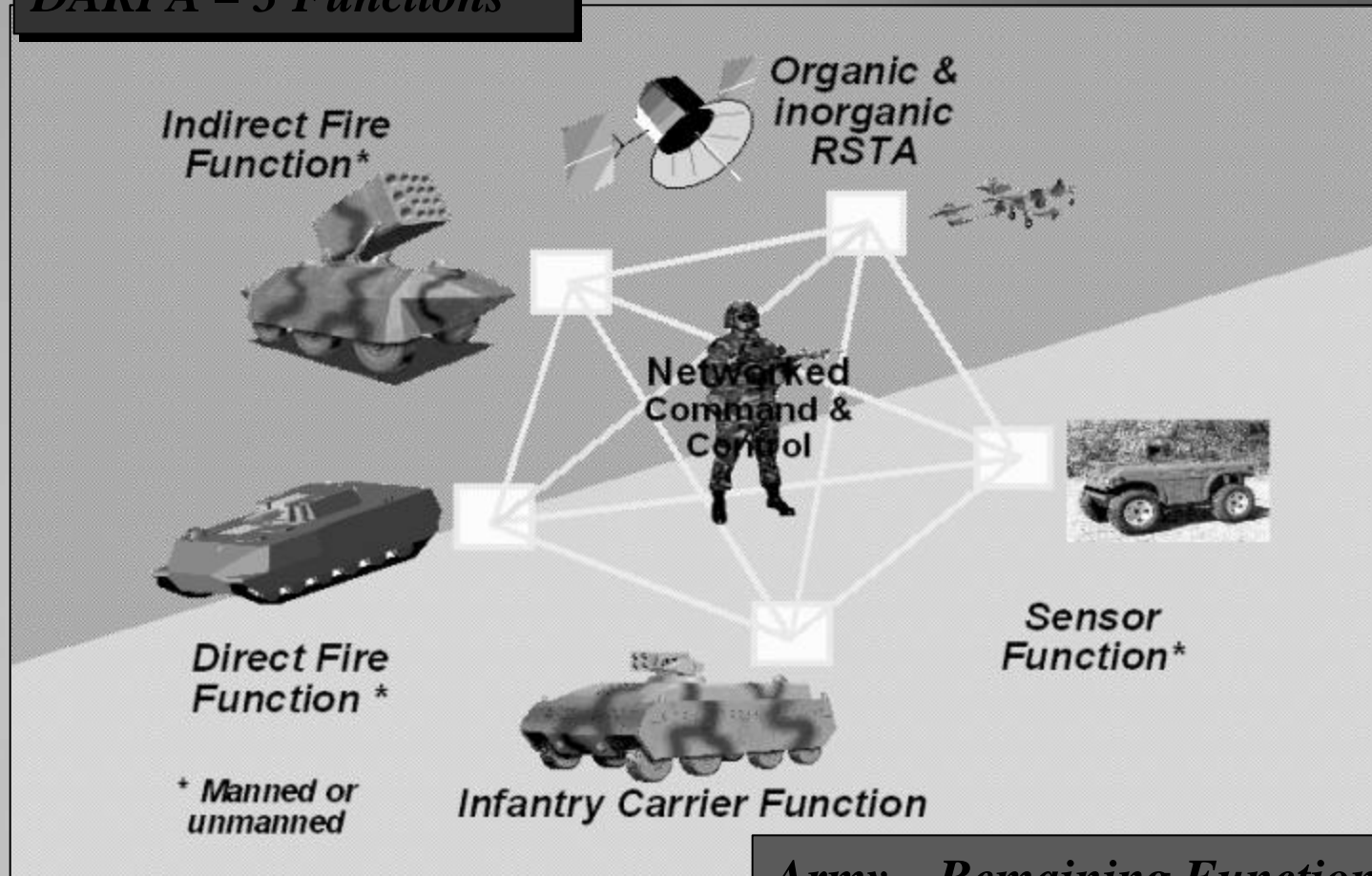


# Develop Full Range of Technology Options for FCS



# *How Do We Get There A Partnership with DARPA*

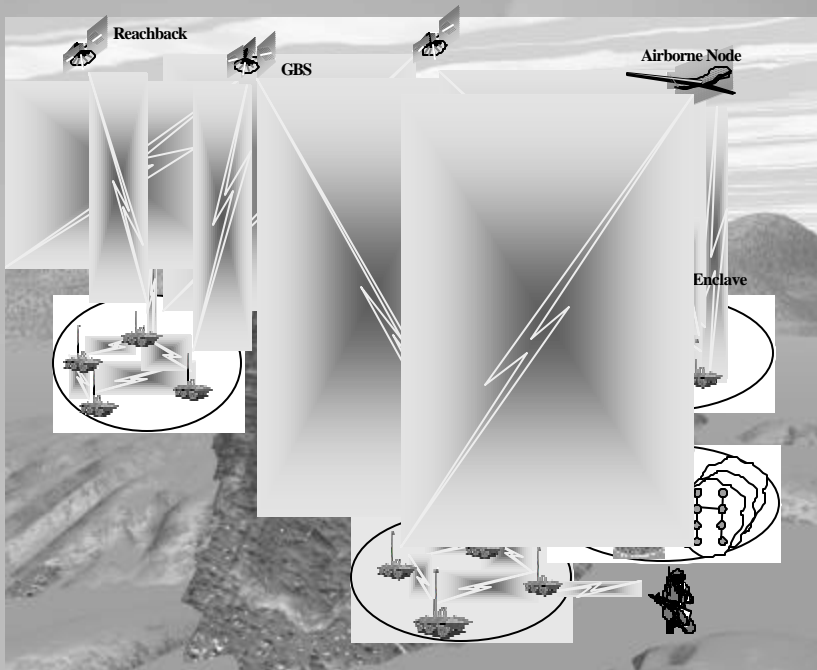
## *DARPA – 3 Functions*



## *Army – Remaining Functions*

## *C4ISR Overview – Role in the Force*

**C4ISR**



**Means to  
achieve**

INFORMATION  
SUPERIORITY

**Enabling  
key operational  
characteristics**

DEPLOYABLE  
VERSATILE  
LETHAL  
AGILE  
SUSTAIN  
SURVIVE  
RESPONSIVE

# Objective Force Linkage

Comanche initiates the process of enabling these concepts and FCS will round out the process

## See First

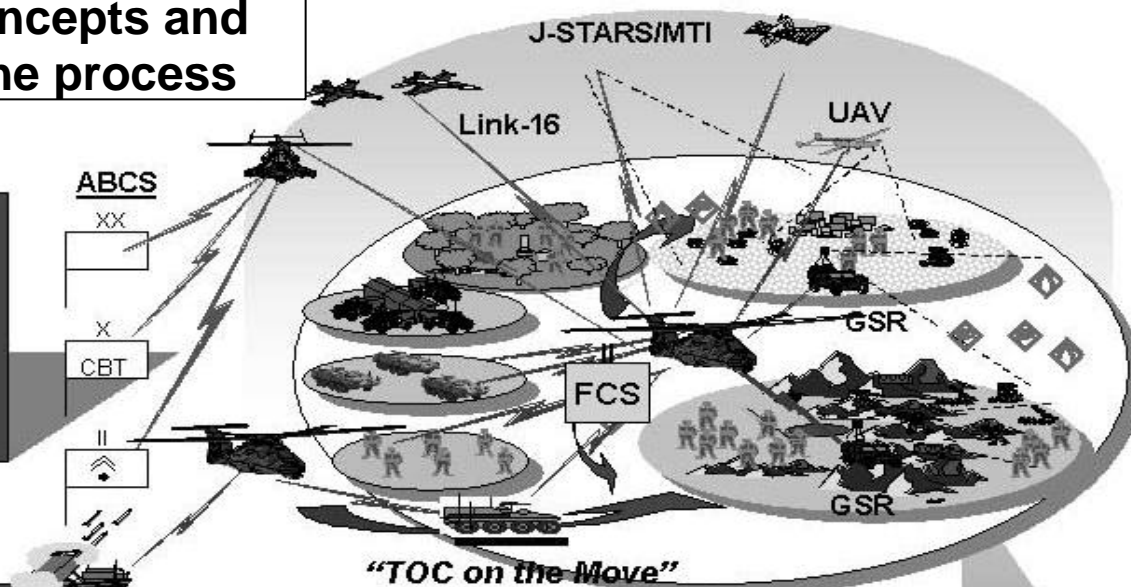
### Situational Awareness:

- Onboard Sensors
- External Sensors
- Data Collection
- Reporting
- See parts / aggregate / environment

## Understand First

### Situational Understanding:

- Sensor Fusion
- Aggregate Display
- Analysis
- Interaction
- Connectivity
- Highlight Vulnerabilities
- See the pattern / anticipate



## Act First

### Situational Knowledge:

- Qualitative rapid decisions
- Develop situation out / in contact
- Employ forces on favorable terms
- Seamless transition :

## Finish Decisively

Synchronize  
organic & external  
fires & maneuver



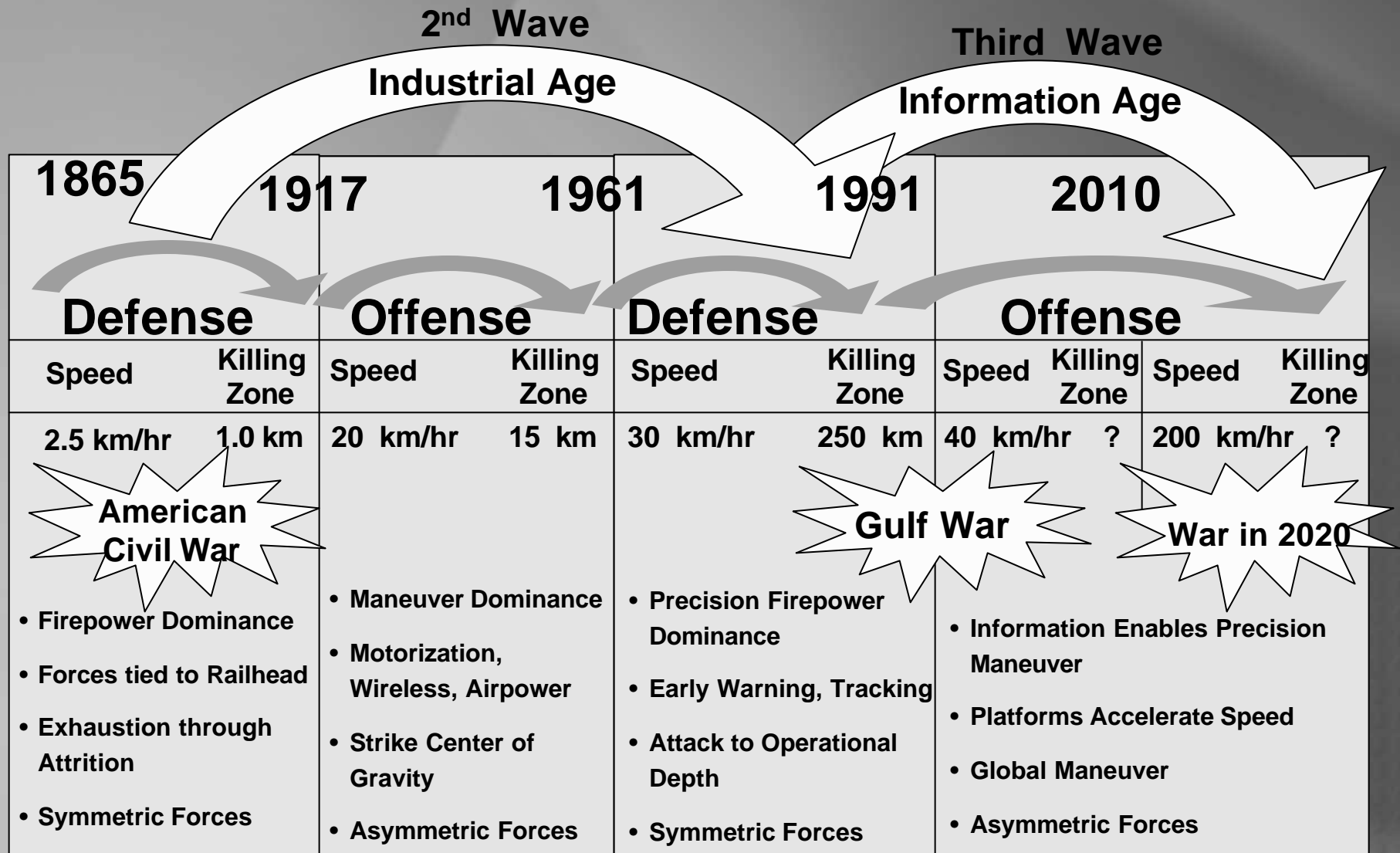
# Challenge to the Team

- **Provide C4ISR Systems that give the commander a truly shared and fused Common Operating Picture.**
  - To achieve that we require sensor and data fusion on a near real time basis.
  - Integrated sensor suites
- **BLOS Fires**
- **Historically SU was an Art. We must turn it into science**

The background is a grayscale abstract composition. It features a large, light gray triangular shape on the left side, which overlaps with a darker gray area on the right. A thin, dark horizontal line runs across the top of the image. In the bottom right corner, there is a rectangular area with a fine, repeating grid pattern, resembling a textured surface or a close-up of a material. The word "Backup" is centered in the middle of the image, overlaid on the lighter gray area.

Backup

# Changes in the Art of War Follow Technology Driven Cycles



Reference: Future Warfare, MG Robert H. Scales, Jr., Strategic Studies Institute, 1999